ENVIRONMENTAL FACTORS AND NON-HODGKIN'S LYMPHOMA IN DOGS: a survey.

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Background and Aims: Lymphomas are hematopoietic malignancies originating from lymphoid cells. According to literature, lymphoma in dogs is similar to non-Hodgkin lymphoma in humans. Some studies show that environmental factors increase the risk of developing lymphoma. This study investigated the correlation between environmental factors and the risk of developing lymphoma in dogs through an epidemiological survey applied to their owners.
Methods: An epidemiological survey was applied to 167 dog owners, corresponding to 84 control cases and 83 dogs diagnosed with Non-Hodgkin lymphoma. Cases and controls were collected in 5 different veterinary hospitals in the city of São Paulo, Brazil. The survey retrieved information about possible environmental contaminants such as passive smoking, contact with pesticides and herbicides and physical, chemical and biological contaminants in water, air and soil.
Results: Statistical analysis showed that dogs with a defined breed had a higher number of representatives with lymphoma when compared to mongrel dogs; multicentric form and stage 4 were the most observed and there was no sexual predisposition. Animals weighing more than 10 kg, living outdoors and close to an important avenue in the city of São Paulo (10 to 20 thousand vehicles and 1 to 1.3 thousand motorcycle per hour) had a higher risk for disease development (OR: 3.8, 95% CI: 1.8 - 8.0, $p < 0.001$ / OR : 3.7, 95% CI: 1.7 - 8.0, $p = 0.001$, respectively).
Conclusions: These results suggest that environmental factors, such as air pollution, may increase the risk for developing canine lymphoma. Further studies are necessary to quantify pollutants in the environment and biomarkers in dogs, in order to better answer this hypothesis.

References:

Breen M, Modiano JF. Evolutionarily conserved cytogenetic changes in hematological malignancies of dogs and humans - man and his best friend share more than companionship. Chromosome Research, v.16, p.145-154, 2008.